

AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph on page 7 beginning at line 20 as follows:

“Referring to FIG. 1, the first and second fluids are injected and stored in the first and second storage chambers, respectively. The first fluid is moved to the reaction chamber 112 via connecting channel 116 using ~~by the~~ capillary force, and is stopped by the first and second stop valves 104,106. The second fluid flows through connecting channel 118 and is also stopped at the first stop valve 104. The first and second stop valves are not ones of an active mechanical device, but ones implemented by the method which makes the fluid stopped by properly adjusting surface tension through the passive method such as geometrical change or surface modification of the channel. In other words, the first and second stop valves have the structure in which the fluid becomes naturally stopped through hydrophobic change of the surface caused by hydrophobic patch attachment or optical irradiation and through geometrical change of a fluid channel such as fast increase of channel width or height. While the first fluid stops at the first and second stop valves 104, 106, it also flows ~~along the~~ along connecting channel 122 through the flow delay part 110 toward the first stop valve 104 and the side connecting channel 108, respectively. Here, the side connecting channel 108 is connected to the first and second stop valves and the flow delay part 110. The first fluid, which is flowing toward the first stop valve 104, is met with the first and second fluids which have been stopped by the surface tension at the first stop valve 104. At this time, the first and second fluids which have been stopped are met with the first fluid which is moving toward the first stop valve 104 and mixed, thereby the first stop valve cannot keep the first and second fluids stopped any more due to the cancellation of stopping barrier--so that they can move. Meanwhile, the first fluid moving through the side connecting channel 108 keeps moving toward the second stop valve 106. While the first fluid moves toward the side connecting channel 108, as described above, the first fluid which is moving toward the first stop valve 104 is met with the fluids which have been stopped at

the first stop valve 104, thereby the function of the first stop valve becomes disabled, and then the mixed fluids as well as the first fluid which is moving toward the connecting channel 108 are moved together toward the side connecting channel 108 by a driving force derived from the surface tension. And the fluids moving through the side connecting channel 108 are met with the first fluid which has been stopped at the second stop valve 106, thereby the function of the second stop valve becomes disabled, as described in the function of the first stop valve, and then the mixed fluids flow toward the exhaust chamber 114 through exhaust channel 120. During this process, the second fluid stored in the second storage chamber 102 moves to the first stop valve 104, the reaction chamber 112, the second stop valve 106, and the exhaust chamber 114 in this order, so that the first fluid stayed in the reaction chamber at first time is exchanged with the second fluid. All the flow described above is performed only by the surface tension that occurs naturally.”

Please amend the paragraph on page 12 beginning at line 10 as follows:

“The embodiment of FIG. 2A is different from that of FIG. 1 in that the channel 116, which had connected the first storage chamber 100 and the reaction chamber 112, and the channel 122, which had connected the flow delay part 110 and the reaction chamber 112, are shifted toward the second ~~storage chamber~~stop valve 106 ~~other than the first storage chamber~~. The embodiment of FIG. 2B is different from that of FIG. 1 in that the channel 122, which had connected the flow delay part 110 and the reaction chamber 112, is shifted toward the second ~~storage chamber~~stop valve 106 ~~other than the first storage chamber~~. The embodiment of FIG. 2C is different from that of FIG. 1 in that the flow delay part 110 is connected ~~toward~~ between the second ~~storage chamber~~stop valve 106 ~~at the~~and the lower position of the reaction chamber 112. Such structure changes can be used to control the shape of the channel in accordance with the size of the reaction chamber and the applied reaction time.”